United States Department of Agriculture
Grain Inspection, Packers and Stockyards Administration
Federal Grain Inspection Service

Program Notice

FGIS-PN-03-02 6/01/03

Alkali Test to Detect Hard White/Red Wheat Kernels

1. PURPOSE

This program notice transmits revised procedures to detect the presence of white and red wheat kernels in samples of Hard White wheat.

2. EFFECTIVE DATE

This program notice replaces Program Notice FGIS-PN-01-07, dated 07/18/01, and is effective upon receipt.

3. BACKGROUND

Program Notice FGIS-PN-01-06, Hard White Wheat Classification for 2001 Crop Year, dated 6-30-01, revised the classification policy for Hard White wheat. This notice also referenced the sodium-hydroxide test developed by the Agricultural Research Service as a method to validate the purity of Hard White wheat.

The sodium-hydroxide (NaOH) test, which is commercially available, turns red wheat dark red in color and turns white wheat straw yellow in color. The sodium-hydroxide test is a useful tool when samples challenge the normal visual inspection method.

The Board of Appeals and Review developed a potassium-hydroxide (KOH) test that provides results similar to the sodium-hydroxide test. This test is a slight modification of the Sorghum Germ Damage Bleach Test. It is now recommended to use 10 grams of potassium-hydroxide instead of 5 grams.

4. PROCEDURES

Commercial sodium-hydroxide test kits developed to detect red and white wheat kernels and the potassium-hydroxide test procedure contained in this notice are approved for use.

a. Commercial sodium-hydroxide test kits. Follow the test kit procedures that come with the test kit.

b. Potassium-hydroxide test. Follow the procedures outlined below. Refer to the Grain Inspection Handbook, Book II, Grain Grading, Section 1.17 for equipment and materials.

(1) Place approximately 15 grams of wheat in a mixing jar.

(2) Add 10 grams of potassium-hydroxide (KOH) pellets.

(3) Add 40 ml of bleach.

(4) Set stirring head on jar, place jar on mixer, and mix for 1½ to 2 minutes.

(5) Pour the wheat from the mixing jar into a tea strainer and rinse with warm tap water to remove the sodium-hydroxide/bleach solution.

(6) After rinsing, lightly tap the tea strainer against the edge of the sink to remove the excess water. Gently press the bottom of the tea strainer on a dry paper towel to remove any additional water.

(7) Place the wheat on a dryer sieve and dry for 2 minutes or until the kernels are not tacky when picked up with a pair of tweezers.

(8) Remove the wheat from the drying sieve and observe the color. White wheat turns a light straw or light amber color. Red wheat turns a dark brownish /red color.

Caution: Too much potassium-hydroxide (step 2) or over mixing (step 4) may remove the bran in red wheat.

5. QUESTIONS

Please direct any questions regarding this procedure to the Board of Appeals and Review.

/s/ John Giler

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